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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,344	09/22/2005	Nicolas Villain	FR 030033	1254
24737	7590	08/18/2011		
PHILIPS INTELLECTUAL PROPERTY & STANDARDS				
P.O. BOX 3001				
BRIARCLIFF MANOR, NY 10510				
EXAMINER				
CWERN, JONATHAN				
ART UNIT		PAPER NUMBER		
3737				
NOTIFICATION DATE		DELIVERY MODE		
08/18/2011		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/550,344

Applicant(s)

VILLAIN ET AL.

Examiner

JONATHAN CWERN

Art Unit

3737

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-944)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation in claims 12 and 28, "identify a segment of interest corresponding to a contour of the object of interest by indentifying points in the segment of interest having similar characteristics based on the data", is considered new matter. In applicant's specification [0030], a region of interesting comprising the object of interest is described. Segmentation is then applied to detect the contours of the object of interest. However, the term "segment of interest" is used no where in applicant's disclosure.

If this is intended to refer to the "region of interest", the limitation would not make sense, as the region of interest cannot correspond to a contour of the object of interest (as the region of interest comprises the object of interest, and thus includes all of the contours of the object of interest).

If this is intended to refer to the "segmented region", the same would apply as the segmented region of interest still contains all of the contours of the object of interest. That is, the entire segmented region cannot correspond to "a contour", as the contours are a part of the overall region.

It appears as though the contours define the different sub-segments. That is, the contours are a part of the overall region of interest, so it appears that a segment which corresponds to a contour would be some sub-segment of the region of interest. Thus, the "segment of interest" would appear to possibly apply to a sub-segment of the segmented region, however the rest of the claim would not make sense in that case either (as in the claim, sub-segments are later identified within the segment of interest which is not commensurate with the specification).

The same also applies to "the other segment of interest", and this limitation is also considered new matter. The disclosure does not refer to "remove select sub-segments from the segment of interest to form an other segment of interest corresponding to the contour of the object of interest". It is unclear what "the other segment of interest" would be.

It should also be noted that applicant has not pointed out where support for these amendments can be found in the disclosure.

It is suggested for applicant to reword the claim so that the claim limitations correspond with elements in the disclosure.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 12 and 28, it is unclear what "a segment of interest" and "an other segment of interest" refer to. This term is not found in applicant's disclosure. It is unclear what element in this specification this refers to, and while the examiner has attempted to interpret it as one of the elements in the specification, doing so causes other elements in the claim to no longer relate properly. For example, if this is intended to refer to the "region of interest", the limitation would not make sense, as the region of interest cannot correspond to a contour of the object of interest (as the region of interest comprises the object of interest, and thus includes all of the contours of the object of interest).

If this is intended to refer to the "segmented region", the same would apply as the segmented region of interest still contains all of the contours of the object of interest. That is, the entire segmented region cannot correspond to "a contour", as the contours are a part of the overall region.

It appears as though the contours define the different sub-segments. That is, the contours are a part of the overall region of interest, so it appears that a segment which corresponds to a contour would be some sub-segment of the region of interest. Thus, the "segment of interest" would appear to possibly apply to a sub-segment of the segmented region, however the rest of the claim would not make sense in that case

either (as in the claim, sub-segments are later identified within the segment of interest which is not commensurate with the specification).

It is suggested for applicant to reword the claim so that the claim limitations correspond with elements in the disclosure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Demonceau et al. (US 6389310).

Demonceau et al. show, acquisition means to acquire a volume of 3D data comprising an object of interest (column 18, lines 40-55); segmenting a region of interest comprising the object of interest within the volume (column 28, lines 25-30); displaying a 2D representation of the volume and segmented region of interest (column 31, lines 40-50); calculation a sub-region map within the segmented region (watersheds used to removed segments at the border of the image and segments isolated in the background, this new image caused by watershed segmentation can be called the sub-region map, column 28, lines 30-50); excluding sub-regions from the region of interest using the sub-region map (column 28, lines 30-50). Demonceau et al. also show, calculating a map of distances (distances are used to identify and segment the Aorta

Descendens, the combination of these calculated distances can be called a "map of distances", column 21, lines 1-25; a map of distances is also used to correct for movement of the Valvular Plane, again the combination of the calculated distances can be called a "map of distances", column 25, lines 10-25); merging sub-regions (column 22, lines 20-45); user control to select sub-regions for exclusion (column 32, lines 5-35); updating the 2D representation to take into account effects of the excluded regions (the 2D displays can be calculated earlier in case the user makes no changes, this implies that if the user makes changes, the 2D displays will have to be updated, column 31, lines 40-50; further discussion of user control, two-dimensional representation, and displays can be found in column 31, line 50-column 39, line 15, wherein the user makes changes if desired to re-segment the image, the 2D representations are made and then displayed); labeling the sub-regions (column 20, line 27); forming a volume of digital data including the object of interest (forming is taken to mean reconstructing the data, column 18, lines 45-55); and a computer program product (column 3, lines 25-40).

It should be noted that specific examples are given above for each claim, however they can be interpreted in a variety of ways. Demonceau et al. teach a method involving segmenting an image to label each part of the heart. The entire heart can be considered the region of interest, and each part of the heart can be considered a sub-region or sub-region map. And in finding and segmenting out each part of the heart, Demonceau et al. are excluding certain sub-regions from other sub-regions. In other words, the very act of segmenting involves excluding one region from another region! There are various segmentations performed in each step to isolate individual regions of

the heart. In addition, there is a broader segmentation performed at the end in which the user can choose to segment the images again based on the user's preference. All of these different segmentations should be considered, as any can be considered the overall region of interest, or a more specific sub-region map.

Response to Arguments

Applicant's arguments filed 9/9/10 have been fully considered but they are not persuasive.

First, the use of the term "segment of interest" in the claims has made it extremely difficult for the examiner to analyze the claims. This term is not found in the specification, and it is unclear which element applicant is referring to. The examiner has presented 112 1st and 2nd paragraph rejections in regards to this language.

Applicant's arguments further confuse the issue for the examiner in trying to interpret the claim. For example, applicant argues that: "Independent claims 12 and 28 specifically recite that the region of interest is a region with points having similar characteristics...". However, it is unclear where in the claims this is specifically recited. The claim language states that it is the "segment of interest" which has points having similar characteristics. Furthermore, the first 3 lines of the claim refer to a separate element which is "a three-dimensional region of interest". So, it appears that the region of interest and the segment of interest are in fact two different elements. And it is unclear how this segment of interest can correspond to a contour of the object of

interest. That is, the contours are a part of the overall region of interest, so it appears that a segment which corresponds to a contour would be some sub-segment of the region of interest.

Furthermore, the examiner respectfully disagrees with applicant's logic. Applicant appears to argue that the heart is not a region of interest having similar characteristics, because it later relies on the differences within the heart to later create sub-segments (such as the AoD, LA, etc.). By this logic, applicant's own invention would not have a region of interest having similar characteristics, as applicant also relies upon differences to later create sub-segments (the segments are identified based upon "variations", or differences). That is, the fact that the heart contains differences which allow it to be segmented into sub-regions, does not prove that the heart does not also contain similarities which allow it to be a region with points having similar characteristics.

Furthermore, the examiner disagrees with applicant's characterization that the claims now refer to a "two-step segmentation process", in which a segment is identified and then further segmented into a plurality of sub-segments. Applicant's claims no longer even refer to a segmentation process! Instead, applicant's claims now simply refer to "identifying segments". The labeling performed by Demonceau for example is certainly "identifying" segments (labels are used for identification).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN CWERN whose telephone number is (571)270-1560. The examiner can normally be reached on Monday through Friday 9:30AM - 6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jonathan G Cwern/
Examiner, Art Unit 3737

/LONG V. LE/
Supervisory Patent Examiner, Art Unit 3768